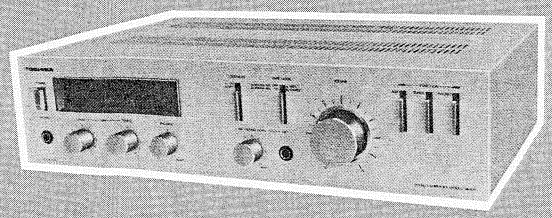
SERVICE DATA
FILE NO. 170-128

TOSHIBA

STEREO AMPLIFIER

SB-A25



SPECIFICATIONS

■ General

Power supply:	220V — 50 Hz for Europe 240V — 50 Hz for United Kingdom and Australia 115V/230V — 50 Hz/60 Hz for Middle East, Asia and South America
Power consumption:	240W
Weight:	4.9 kg
Dimensions:	420(W) x 109(H) x 286(D) mm

■ Amplifier

Continuous power output 40 Hz ∿ 20 kHz both ch. driven:	25W x 2 (4Ω), 25W x 2 (8Ω)
1 kHz both ch. driven:	28W x 2 (4Ω), 28W x 2 (8Ω)
Total harmonic distortion:	0.1% (at rated power 8Ω)
Frequency response:	28 Hz ∿ 50 kHz (±3 dB)
Load impedance:	4Ω ∿ 16Ω
Damping factor:	25
S/N (IHF a Network):	92 dB (TUNER/AUX) 72 dB (PHONO)
Input sensitivity/-impedance:	PHONO 2.5mV/47KΩ TUNER 150mV/47KΩ AUX/TAPE 150mV/47KΩ MIC 0.5mV/47KΩ
Output level:	TAPE REC 150mV
Tone control:	BASS (at 100 Hz) ±8 dB TREBLE (at 10 kHz) ±8 dB
Phono overload level:	120mV

Specifications and design are subject to change without notice.

TE, TU, AY, VF

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1. OPERATING CONTROLS

(The photographs are ones of Europe Model)

FRONT VIEW

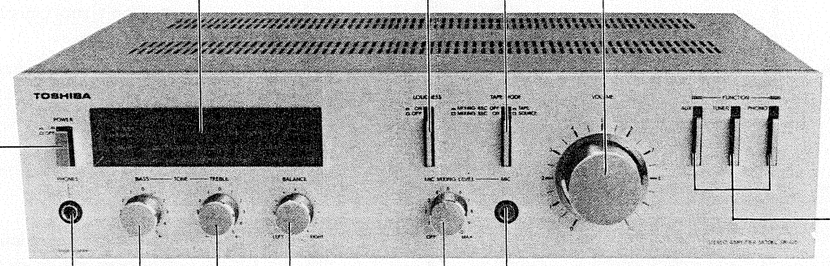


Figure 1

(1) Loudness Switch
Depress this switch ON when listening at very low volume levels (between 0 and 5 on the volume scale) to emphasize the low and high frequency regions.

(2) Peak Power Meters
These meters indicate the peak (instantaneous) power output levels when using 8 ohm speakers. For 4 ohm speakers, multiply the indicated readings by 2 to obtain approximate values.

(3) Power Switch
Depress this switch to turn on power, depress again to turn power off.

(4) Phones
Plug into this jack when listening through headphones. If headphones are connected to this jack, the sound from the speakers is cut off.

(5) Tone Controls
Turn these knobs clockwise from the centre zero (flat) position to emphasize bass or treble tones. Turn counterclockwise to attenuate (decrease) bass or treble tones.

(6) Balance Control
Turn this knob to adjust volume balance between left and right speakers.

(11) Tape Mode Switch
Depress this switch to the relevant settings for tape playback or other sources.

(12) Volume
Turn this knob to adjust the volume level.

(13) Function Selector
AUX: For use with any kind of audio equipment (excluding turntables and microphones)
PHONO: For listening to records on the turntable
TUNER: For listening to radio broadcasts

(14) Mic Jack
Plug in microphone plug to this jack when using mics.

(15) Mic Mixing Volume
Turn this knob to adjust mic volume level. When mixing sound from mic with other sources, the mic volume can be adjusted independently of the main volume level. Turn this volume knob OFF when not in use to prevent the pick-up of extraneous sounds and the loss of stereo separation.

REAR VIEW

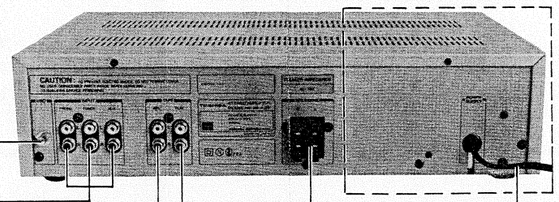
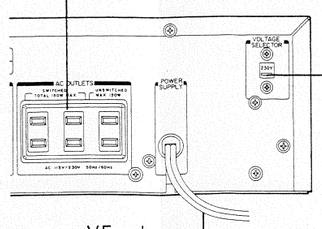


Figure 2



VF only

(7) Ground Terminal

(8) Input Terminal (PHONO/TUNER/AUX)

(9) (REC/PLAY)

(10) Speaker Terminal

(16) AC Outlet

(17) Voltage Selector Switch

(18) Power Cord

2. SYSTEM CONNECTIONS

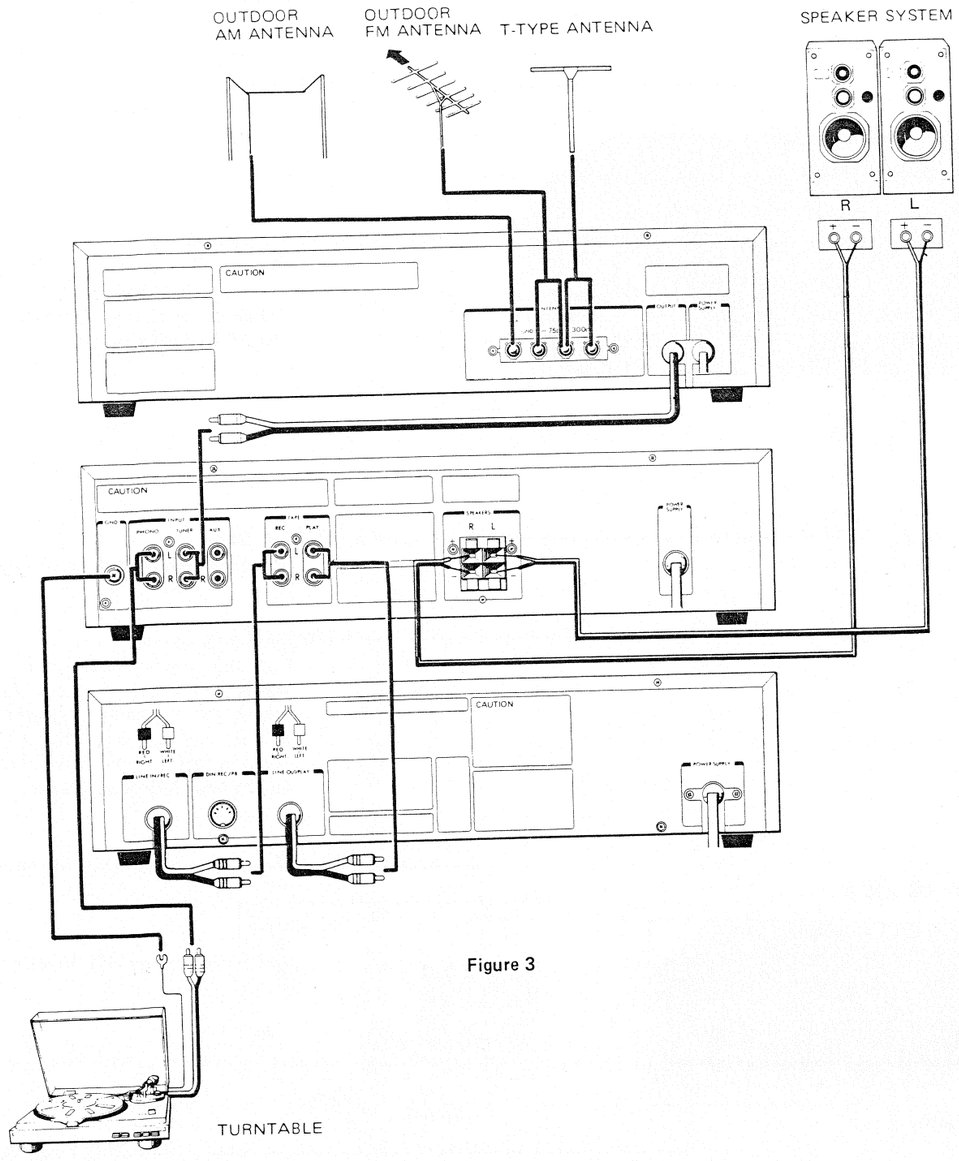


Figure 3

3. OPERATION

Connections of Speakers to the Amplifier

Connect the right speaker cord to the "R" amplifier speaker output terminal and the left speaker cord to the "L" terminal. Be sure to connect the plus terminal of the speaker to the plus terminal of the amplifier speaker output terminal and minus to minus. Wrong connection of plus and minus causes the loss of stereophonic playback sound.

- Be sure to leave the power switch of the amplifier OFF while performing connections.
- Don't short-circuit the plus and minus terminals of the speakers.

  Note: When using a pair of speakers, use only those with an impedance of at least 4 ohms to avoid overloading the amplifier.
- Confirm that the volume knob is in the 0 position before the power is turned on.

To Play Phonograph Records

Connect the output cables from the turntable to the PHONO terminals of the amplifier. If the turntable is equipped with an earth wire or terminal, be sure to connect it to the earth wire terminal (GND) of the amplifier, if this simple task is overlooked, it may result in the generation of a hum.

To Listen to Radio Broadcast

Connect the tuner output cables to the TUNER input terminals on the rear panel of the amplifier.
There is no special need to link the tuner and amplifier with an earth wire.

To Use the AUX Terminals

When an audio component is connected to the AUX terminals, place the FUNCTION Selector in the AUX position. Operate the connected component according to its instruction manual. Finally, adjust the volume and tone as desired.

Using a tape deck

Connect the tape deck input terminals (LINE IN) to the amplifier record terminals (REC), and the tape deck output terminals (LINE OUT) to the amplifier playback (PLAY) terminals.

(1) To record on tape

Prepare the program source (turntable, tuner, etc.) to be recorded, and set up the tape deck to record following the tape deck instruction manual. Note that while recording, the amplifier volume and tone controls will have no effect on the recording level or tone.

(2) To Playback tapes

Place the tape mode switch to the TAPE position, and follow the instructions for tape playback in the tape deck instruction manual.

Mic mixing and mic mixing recording

This set is designed to permit direct mic mixing with tuner, turntable, or other audio sources, and mic mixing recording.
Note: Always remember to turn the mic volume level to the MIN position before unplugging the microphone.

(1) Mic mxing

Insert the microphone plug into the mic jack (14) and prepare the source for play. For mic mixing with records, place the Function switch (13) to the PHONO position, or if using a tuner or a component connected to the AUX terminal, place this switch on TUNER or AUX. Depress "SOURCE" MIX REC. With the controls thus set, turn Volume (12) to the proper level, then turn the Mic mixing level (15) to the right until the mic volume is balanced with that of the source. For mic mixing with tapes, depress the "TAPE" MIX REC button, then the procedure is the same as noted above.

(2) MIC mixing recording

The mic mixing described in the procedure above using a source connected to PHONO, TUNER, or AUX may be recorded by the tape deck by merely operating the tape deck in the recording mode. Mic mixing using a tape deck as a source cannot be recorded onto another tape.

Tape Monitoring

When recording with a tape deck equipped with proper tape monitoring facilities, monitoring of the recording is possible by moving the TAPE MODE switch from the SOURCE position to the corresponding TAPE position.

4. DISASSEMBLY INSTRUCTIONS

TOP COVER REMOVAL

1. Remove four screws (A) (3ϕ x 6mm) from each side of the top cover as shown in Figure 4.
2. Remove two screws (B) (3ϕ x 6mm) from back side of the top cover. Then, the top cover can be removed from the unit as shown in Figure 4.

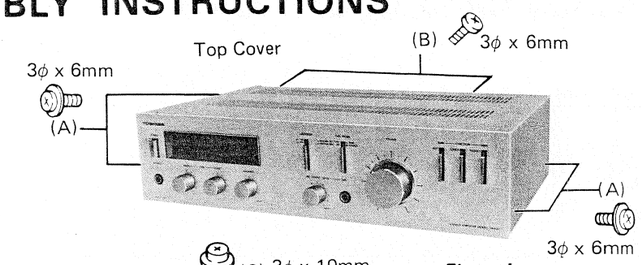


Figure 4

BOTTOM PLATE REMOVAL

1. Remove two screws (C) (3ϕ x 10mm) holding the bottom plate as shown in Figure 5.
2. Remove four screws (D) (3ϕ x 12mm) holding the legs on the bottom plate. Then, the bottom plate can be removed from the unit, and the P.C. Board can be checked easily as shown in Figure 5.

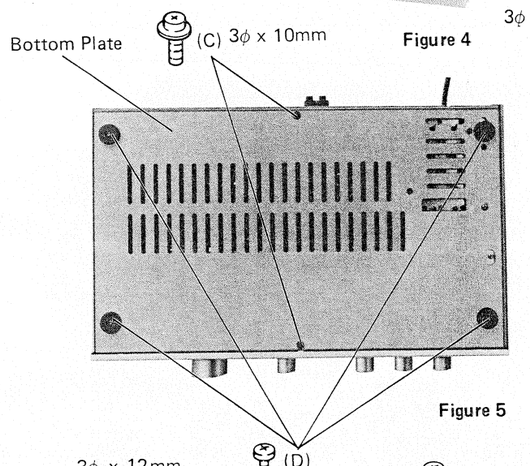


Figure 5

FRONT PANEL REMOVAL

1. Remove five knobs (E) as shown in Figure 6.
2. Remove the hexagon nut holding the Volume Ring under the Volume knob.

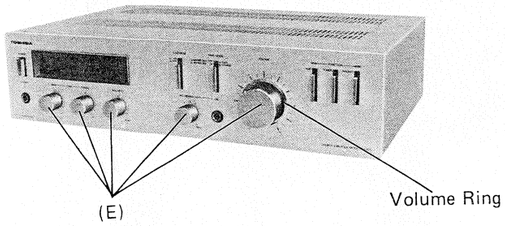


Figure 6

3. Remove four screws (F) (3ϕ x 8mm) and one screw (G) (3ϕ x 12mm) holding the P.C. Board as shown in Figure 7.
4. Remove four screws (H) (3ϕ x 8mm) of the side panel plate holding the side plate as shown in Figure 8 and 9.
5. Remove the P.C. Board and the other installed in the panel. Then, the panel can be removed from the unit.

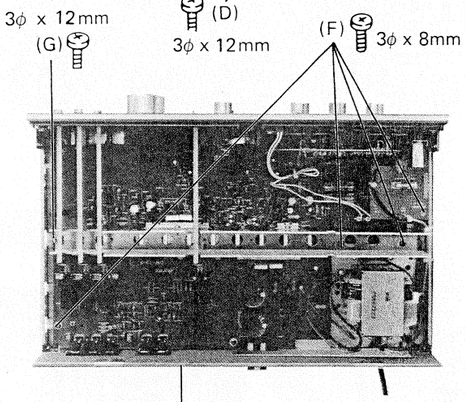


Figure 7

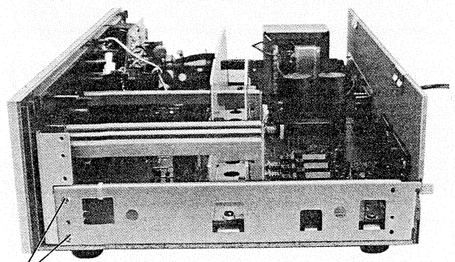


Figure 8

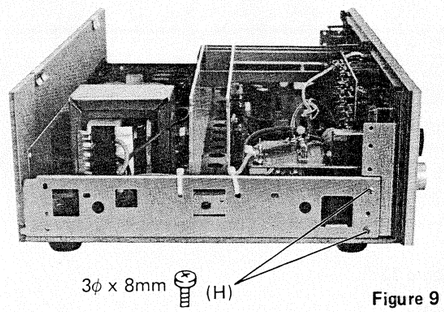


Figure 9

5. ADJUSTMENTS

IDLE CURRENT ADJUSTMENT

1. Idle current adjustment can easily be done by setting the semi-fixed VR R650 (Rch), R649 (Lch) (300 ohm) to mechanical mid point VR as shown in Figure 10.
2. The idle current between TP and TP must be less than 30mA when power has been on for 30 seconds.

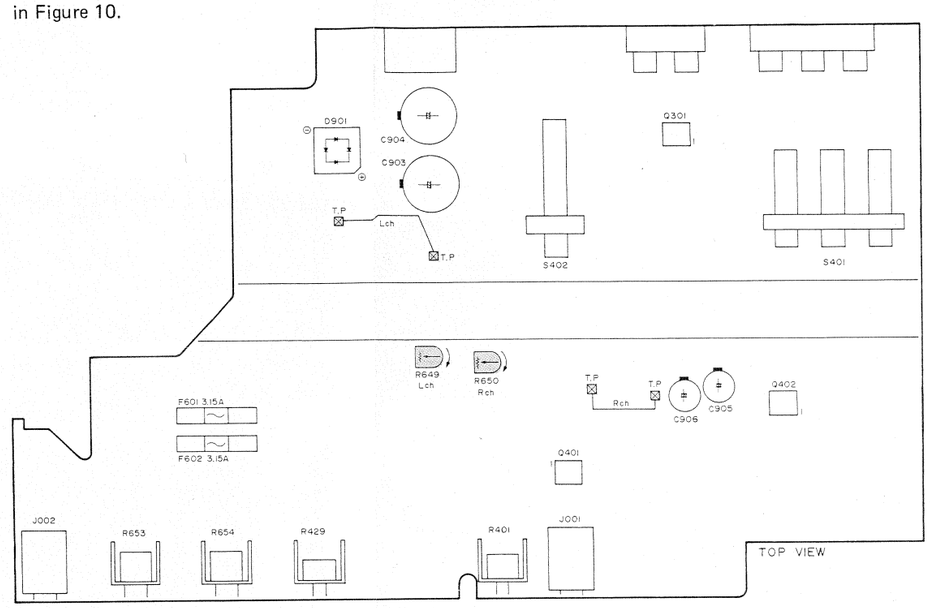


Figure 10

6. BLOCK DIAGRAM

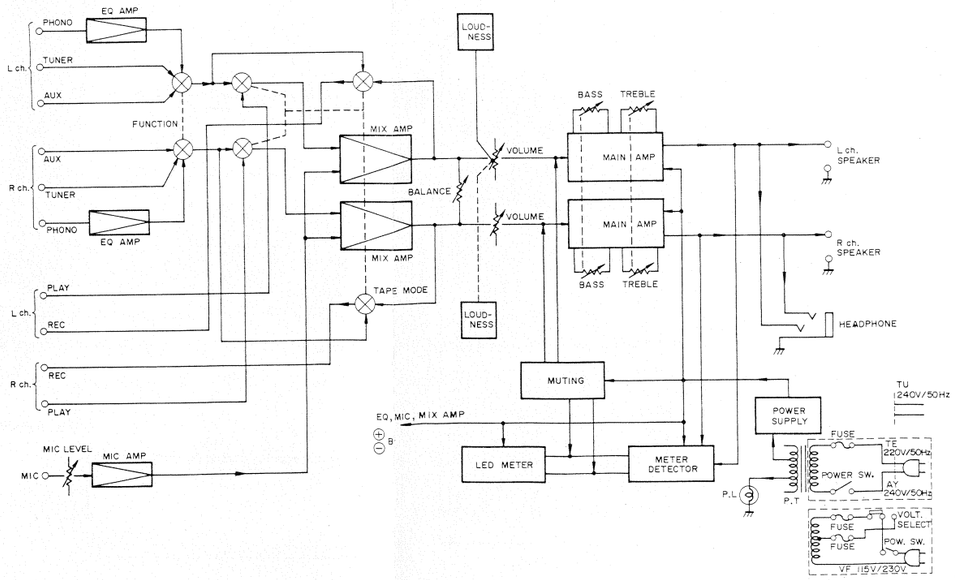


Figure 11

7. ELECTRICAL PARTS LOCATIONS

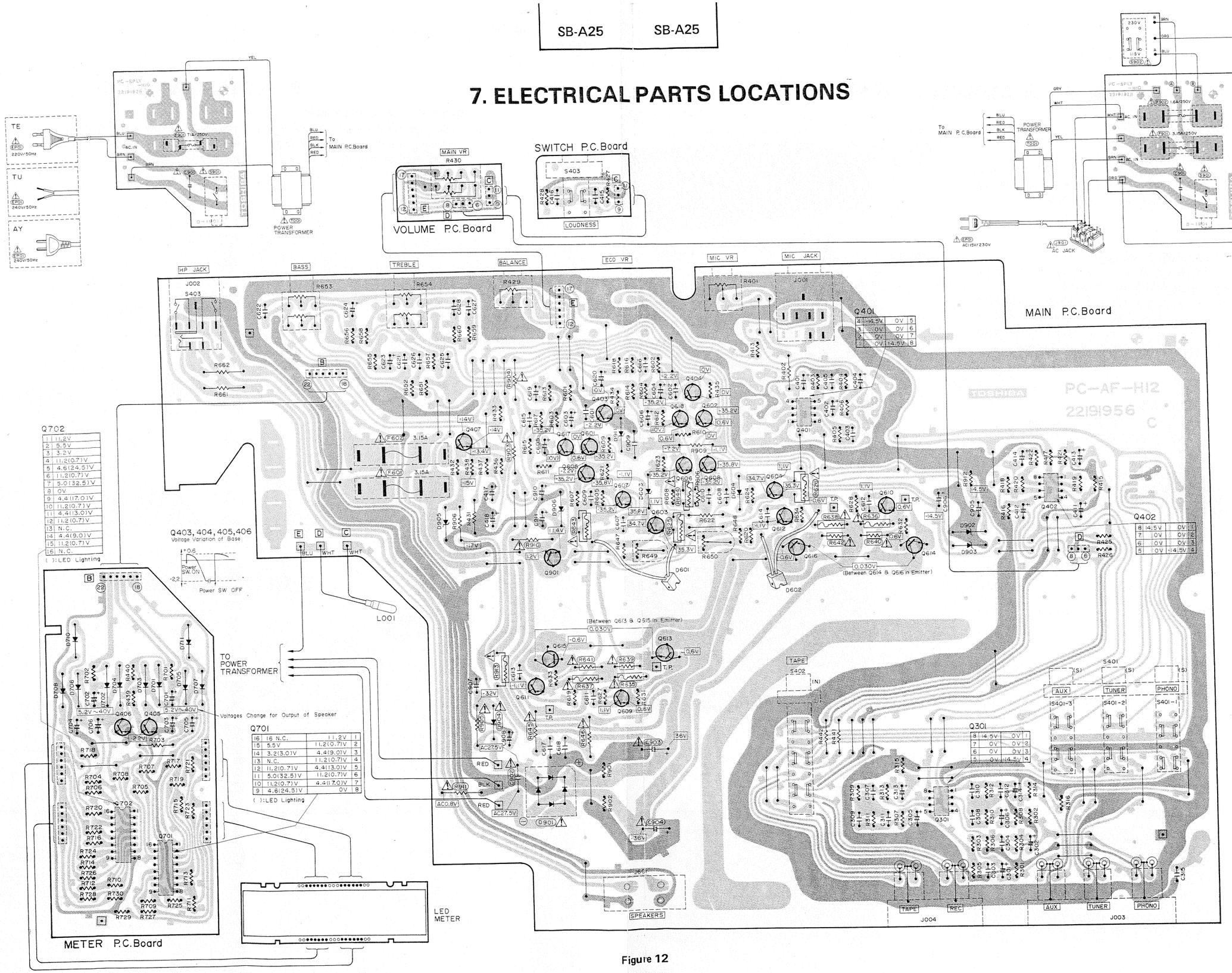
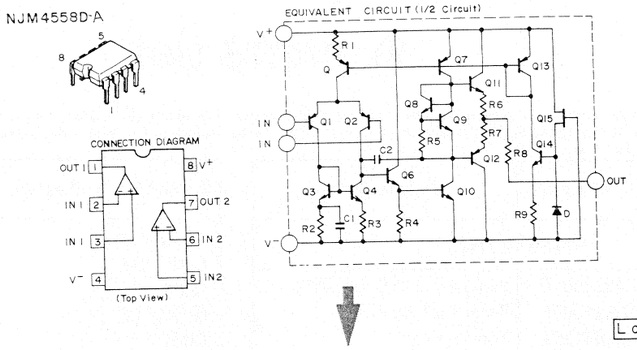
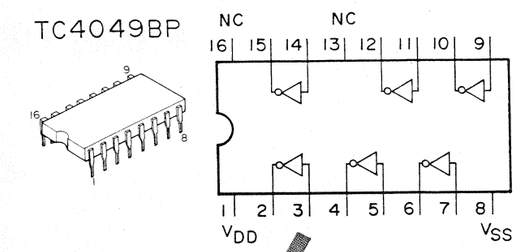
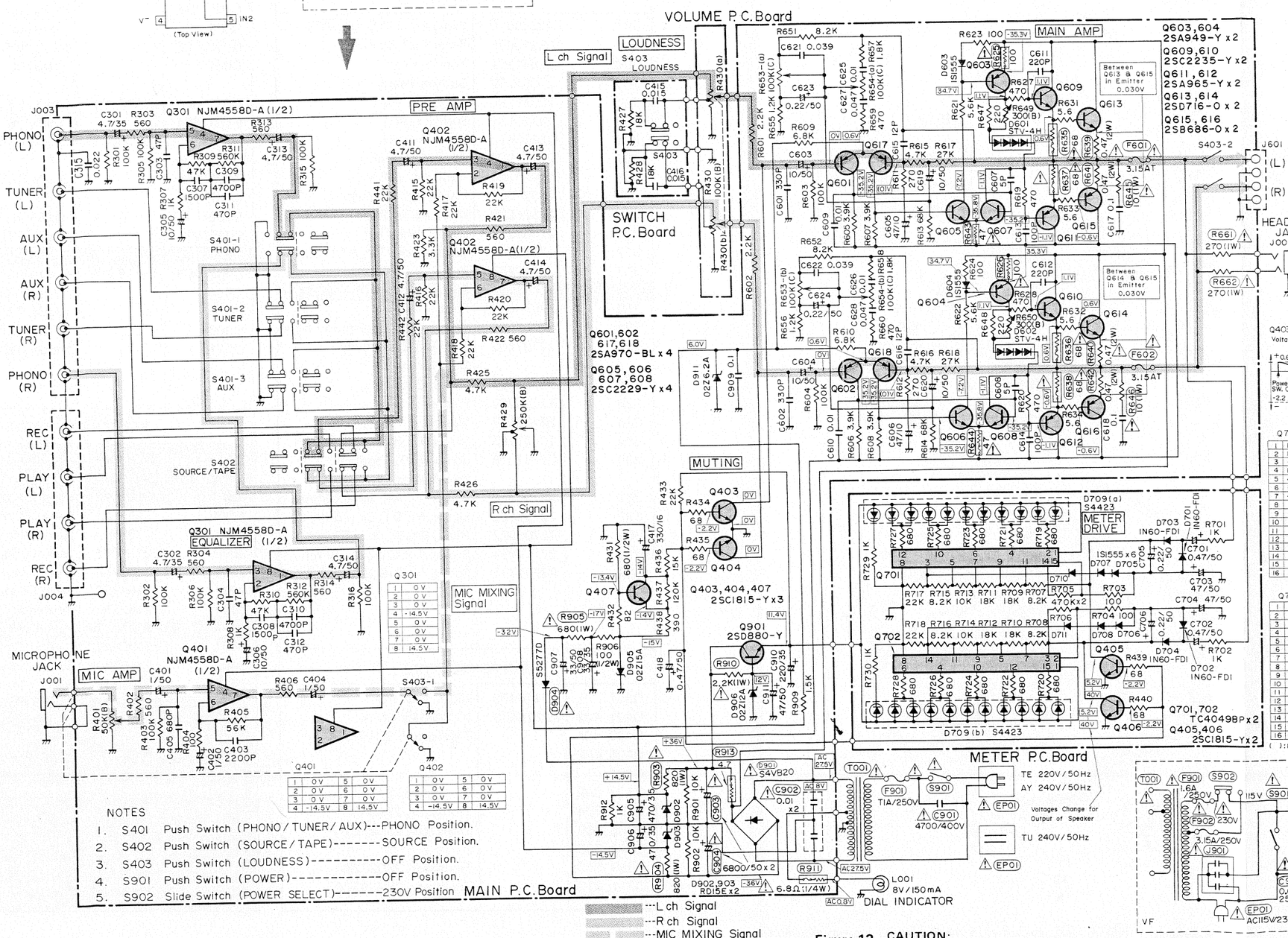


Figure 12

8. SCHEMATIC DIAGRAM







NOTES

1. S401 Push Switch (PHONO / TUNER / AUX)---PHONO Position.
2. S402 Push Switch (SOURCE / TAPE)-------SOURCE Position.
3. S403 Push Switch (LOUDNESS)----------OFF Position.
4. S901 Push Switch (POWER)-------------OFF Position.
5. S902 Slide Switch (POWER SELECT)------230V Position

---L ch Signal
---R ch Signal
---MIC MIXING Signal

Figure 13

CAUTION:
The ⚠ mark, the symbol No. circled with rectangle in the schematic diagram and the shaded area in the parts list designate components which have special characteristics important for safety and should be replaced only with types identical to those in the original circuit or specified in the parts list.

9. CABINET PARTS LOCATIONS

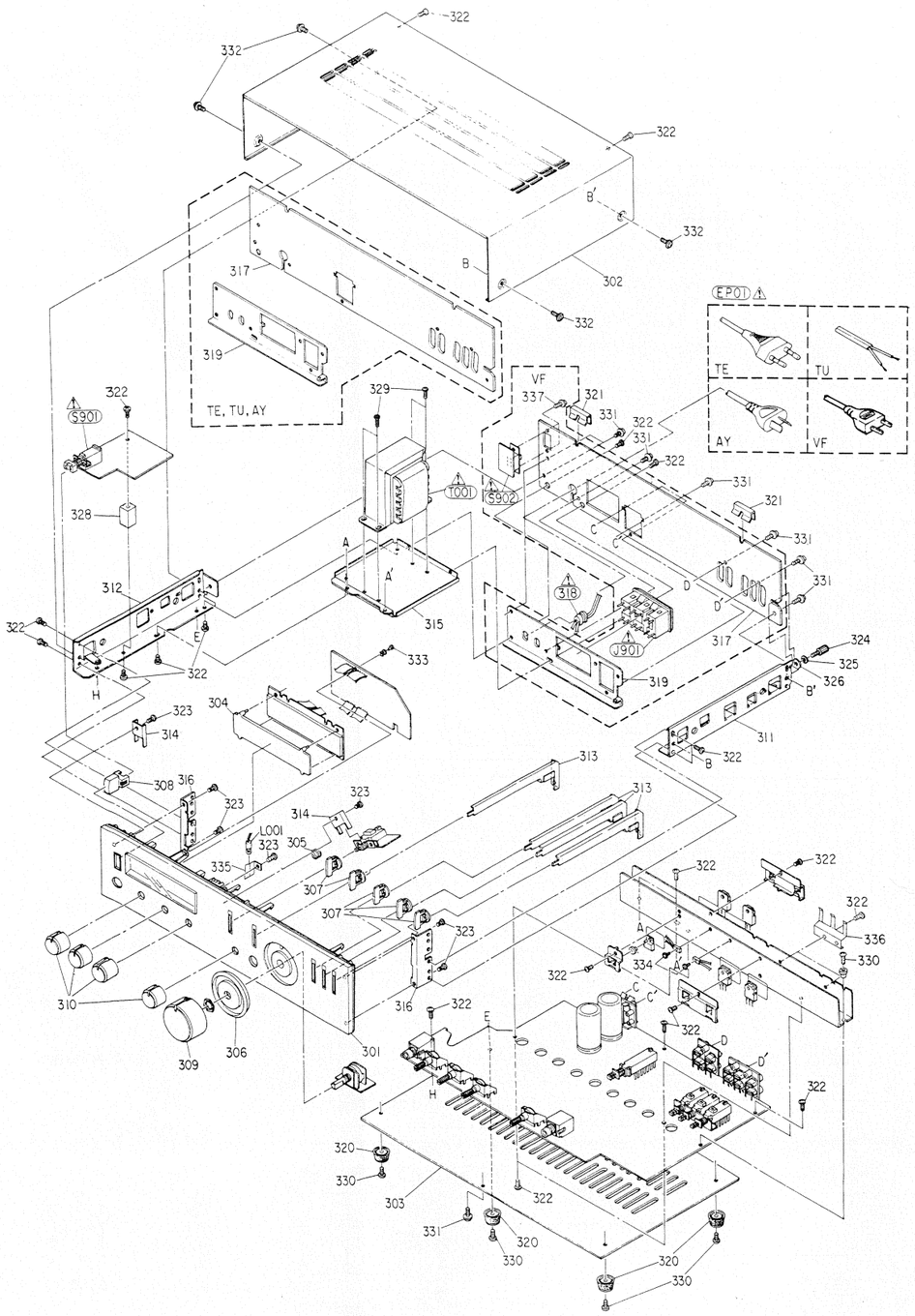


Figure 14

NOTE: Parts excluded in the Parts List are not available as replacement parts.

10. PARTS LIST

CAUTION:
The ⚠ mark, the symbol No. circled with rectangle in the schematic diagram and the shaded area in the parts list designate components which have special characteristics important for safety and should be replaced only with types identical to those in the original circuit or specified in the parts list.

	Symbol No.	Part No.	Description
	CABINET PARTS		
	301	22825015	Panel Ass'y (TE, TU, AY)
	301	22825025	Panel Ass'y (VF)
	302	22841229	Top Cover
	303	22852262	Bottom Board
	304	22836386	Plate, Dial Meter
	305	25777021	Spring, Push
	306	22833473	Ring, Volume
	307	22884009	Knob, Function
	308	22824350	Knob Ass'y, Power
	309	22826318	Knob Ass'y, Volume
	310	22826320	Knob Ass'y, Tone
	317	22852256	Board, Jack (TE)
	317	22852257	Board, Jack (TU, AY)
	317	22852258	Board, Jack (VF)
⚠	318	25845528	Bush, Nylon
	320	22874033	Foot
	322	22701326	Screw, BID,Tapping,3ϕ x 8mm
	323	22707165	Screw, BID, Tapping, 3ϕ x 10mm
	324	20794122	Screw, Ground
	325	22703269	Washer
	326	22703189	Washer
	329	22707185	Screw, FT BID, 4ϕ x 8mm
	330	22707118	Screw, BID, Tapping 3ϕ x 12mm
	331	22707380	Screw, T PAN, 3ϕ x 10mm
	332	22707522	Screw, FL DT, 3ϕ x 6mm
	333	22705022	Rivet, Plastic, 3ϕ x 5.5mm
	334	22701434	Screw, T PAN, 3ϕ x 10mm
	337	22707713	Screw, FT BID,2.6ϕ x 8.2mm (VF)
	SEMI CONDUCTORS		
	Q301	22114470	IC, NJM4558D-A
	Q401, 402	22114470	IC, NJM4558D-A
	Q403, 404		Transistor, 2SC1815-Y
	Q405, 406		
	Q407		
	Q601, 602		Transistor, 2SA970-BL
	Q603, 604		Transistor, 2SA949-Y
	Q605, 606		Transistor, 2SC2229-Y
	Q607, 608		
	Q609, 610		Transistor, 2SC2235-Y
	Q611, 612		Transistor, 2SA965-Y

	Symbol No.	Part No.	Description
	Q613, 614		Transistor, 2SD716-O
	Q615, 616		Transistor, 2SB686-O
	Q617, 618		Transistor, 2SA970-BL
	Q701, 702		IC, TC4049BP
	Q901		Transistor, 2SD880-Y
	D601, 602	22115424	Diode, STV-4H
	D603, 604		Diode, 1S1555V
	D701, 702	22115603	Diode, 1N60-FD1
	D703, 704		
	D705, 706		Diode, 1S1555V
	D707, 708		
	D709		LED Ass'y, S4423
	D710, 711		Diode, 1S1555V
⚠	D901	22115422	Diode, S4VB20
	D902, 903	22115368	Diode, RD15E
	D904		Diode, S5277D
	D905		Diode, 02Z15A
	D906		Diode, 02Z12A
	D911		Diode, 02Z6.2A
	ELECTRICAL PARTS		
⚠	T001	22223952	Transformer, Power (TE)
⚠	T001	22223951	Transformer, Power (TU, AY)
⚠	T001	22223969	Transfomer, Power (VF)
	L001	22113521	Lamp, Pilot 8V/150mA(BLU)
	J001	22163744	Jack, Microphone
	J002	22163744	Jack, Headphone
	J003	22163758	Jack, Input 6P
	J004	22163759	Jack, Output 4P
	J601	22162456	Terminal. Speaker
⚠	J901	22167697	Outlet, 3P (VF)
	S401	22195642	Switch, Push (Function)
	S402	22195640	Switch, Push (Tape Mode)
	S403	22195641	Switch, Push (Loudness)
⚠	S901	22195631	Switch, Push (Power)
⚠	S902	22195745	Switch, Slide (Power Select) (VF)
⚠	F601, 602	22144355	Fuse, T3.15A/250V
⚠	F901	22144337	Fuse, T1A/250V(TE,TU,AY)
⚠	F901	22144405	Fuse, N1.6A/250V (VF)
⚠	F902	22144355	Fuse, T3.15A/250V (VF)
⚠	EP01	22176286	Cord, Power (TE)
⚠	EP01	22176536	Cord, Power (TU)
⚠	EP01	22176588	Cord, Power (AY)
⚠	EP01	22176125	Cord, Power (VF)

Symbol No.	Part No.	Description
		CAPACITORS
		D = ±0.5pF, J = ±5%, K = ±10%, M = ±20%, Z = −20 + 80% P = −0 +100%
		ABBREVIATIONS: CD = Ceramic Disk, EL = Electrolytic MY = Mylar Film
C301, 302	22467479	EL, 4.7mfd, 35V
C303, 304	22362470	CD, 47pF, 50V, K
C305, 306	22488100	EL, 10mfd, 50V
C307, 308	22360534	CD, 1500pF, 25V, K
C309, 310	22360540	CD, 4700pF, 25V, K
C311, 312	22349471	CD, 470pF, 50V, K
C313, 314	22488479	EL, 4.7mfd, 50V
C315	22342223	CD, 0.022mfd, 50V, Z
C401	22488109	EL, 1mfd, 50V
C402	22488109	EL, 1mfd, 50V
C403	22349222	EL, 2200pF, 50V
C404	22488109	EL, 1mfd, 50V
C405	22349681	CD, 680pF, 50V, K
C411, 412	22488479	EL, 4.7mfd, 50V
C413, 414	22488479	EL, 4.7mfd, 50V
C415, 416	22360546	CD, 0.015mfd, 25V, K
C417	22485331	EL, 330mfd, 16V
C418	22488478	EL, 0.47mfd, 50V
C601, 602	22362331	CD, 330pF, 50V, K
C603, 604	22488100	EL, 10mfd, 50V
C605, 606	22483470	EL, 47mfd, 10V
C607, 608	22361509	CD, 5pF, 50V, D
C609, 610	22360544	EL, 0.01mfd, 25V, K
C611, 612	22349221	CD, 220pF, 50V, K
C613, 614	22362101	CD, 100pF, 50V, K
C615, 616	22361120	CD, 12pF, 50V, J
C617, 618	22372104	MY, 0.1mfd, 50V, K
C619, 620	22488100	EL, 10mfd, 50V
C621, 622	22372393	MY, 0.039mfd, 50V, K
C623, 624	22488228	EL, 0.22mfd, 50V
C625, 626	22371103	MY, 0.01mfd, 50V, J
C627, 628	22372473	MY, 0.047mfd, 50V, K
C701, 702	22488478	EL, 0.47mfd, 50V
C703, 704	22488470	EL, 47mfd, 50V
C705, 706	22488228	EL, 0.22mfd, 50V
⚠ C901	22340150	CD, 4700pF, 400V, M (TE, TU, AY)
⚠ C901	22340140	CD, 0.01mfd, 125V, P (VF)
⚠ C902	22340148	CD, 0.01mfd, 500V, Z
⚠ C903, 904	22440338	EL, 6800mfd, 50V
C905, 906	22487471	EL, 470mfd, 35V
C907	22488330	EL, 33mfd, 50V
C908	22487330	EL, 33mfd, 35V
C909	22360333	CD, 0.1mfd, 25V, K
C910	22487221	EL, 220mfd, 35V
C911	22488470	EL, 47mfd, 50V

Symbol No.	Part No.	Description
		RESISTORS
		All resistors are carbon film 1/4W, ±5% unless otherwise noted.
R301, 302	22555104	100K ohm
R303, 304	22555561	560 ohm
R305, 306	22555104	100K ohm
R307, 308	22555102	1K ohm
R309, 310	22555473	47K ohm
R311, 312	22555563	560K ohm
R313, 314	22555561	560 ohm
R315, 316	22555104	100K ohm
R401	22627018	50K ohm, B, Variable (MIC)
R402	22545561	560 ohm
R403	22555104	100K ohm
R404	22555101	100 ohm
R405	22555563	56K ohm
R406	22555561	560 ohm
R415, 416	22555223	22K ohm
R417, 418	22555223	22K ohm
R419, 420	22555223	22K ohm
R421, 422	22555561	560 ohm
R423	22555332	3.3K ohm
R425, 426	22555472	4.7K ohm
R427, 428	22555183	18K ohm
R429	22627015	250K ohm, B, Variable (BALANCE)
R430	22651493	100K ohm,B,Variable(MAIN)
R431	22547681	680 ohm, 1/2W
R432	22555820	82 ohm
R433	22555223	22K ohm
R434, 435	22555680	68 ohm
R436	22555153	15K ohm
R437	22555124	120K ohm
R438	22555391	390 ohm
R439, 440	22555680	68 ohm
R441, 442	22555223	22K ohm
R601, 602	22555222	2.2K ohm
R603, 604	22555104	100K ohm
R605, 606	22555392	3.9K ohm
R607, 608	22555392	3.9K ohm
R609, 610	22555682	6.8K ohm
R611, 612	22555271	270 ohm
R613, 614	22555683	68K ohm
R615, 616	22555472	4.7K ohm
R617, 618	22555273	27K ohm
R619, 620	22555471	470 ohm
R621, 622	22555562	5.6K ohm
R623, 624	22555101	100 ohm
⚠ R625, 626	22500290	100 ohm, Fusible
R627, 628	22555471	470 ohm
R631, 632	22555561	5.6 ohm
R633, 634	22555561	5.6 ohm

	Symbol No.	Part No.	Description
⚠	R635, 636	22500150	68 ohm, Fusible
⚠	R637, 638	22500150	68 ohm, Fusible
⚠	R639, 640	22500189	0.47 ohm, 2W
⚠	R641, 642	22500189	0.47 ohm, 2W
⚠	R643, 644	22500286	47 ohm, Fusible
⚠	R645, 646	22570250	10 ohm, 1W, Metal Film
	R647, 648	22555221	220 ohm
	R649, 650	22658500	300 ohm, B, Semi-fixed
	R651, 652	22555821	8.2K ohm
	R653	22620017	100K ohm, C, Variable
	R654	22620017	100K ohm, C, Variable
	R655, 656	22500122	1.2K ohm
	R657, 658	22555182	1.8K ohm
	R659, 660	22555471	470 ohm
⚠	R661, 662	22570267	270 ohm, 1W, Metal Oxied Film
	R701, 702	22555102	1K ohm
	R703, 704	22555101	100 ohm
	R705, 706	22555474	470K ohm
	R707, 708	22555822	8.2K ohm
	R709, 710	22555183	18K ohm
	R711, 712	22555183	18K ohm
	R713, 714	22555103	10K ohm
	R715, 716	22555822	8.2K ohm
	R717, 718	22555222	22K ohm
	R719, 720	22555681	680 ohm
	R721, 722	22555681	680 ohm
	R723, 724	22555681	680 ohm
	R725, 726	22555681	680 ohm
	R727, 728	22555681	680 ohm
	R729, 730	22555102	1K ohm
	R901, 902	22555103	10K ohm
⚠	R903, 904	22570273	820 ohm, 1W, Metal Oxied Film
⚠	R905	22570272	680 ohm, 1W, Metal Oxied Film
	R906	22547101	100 ohm, 1/2W
	R909	22545152	1.5K ohm
	R910	22570278	2.2K ohm, 1W, Metal Oxied Film
⚠	R911	22500171	6.8 ohm, Fusible
	R912	22555102	1K ohm
⚠	R913	22500169	4.7 ohm, Fusible

ACCESSORIES		
AC01	22902988	Owner's Manual(TE, TU, AY)
AC01	22902993	Owner's Manual (VF)
AC02	22167658	AC Adapter (VF)